AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

1. (currently amended) A buffered solution in contact with a G-protein-coupled receptor (GPCR) array, the GPCR array comprising multiple GPCRs which have different ligand-binding activities ~~for multiplexed binding assays using GPCR arrays~~, the solution ~~having a composition~~ comprising: a) a buffer reagent with a pH in the range of about 6.5 to about 7.9; b) an inorganic salt of either a monovalent or divalent species, at a concentration from about 1 mM to about 500 mM; and ~~optionally a combination of:~~ c) a blocker reagent at a concentration of about 0.01 wt.% to about 2 wt.% of the buffered solution ~~composition, or d) protease inhibitor at a concentration of about 0.001 mM to about 100 mM, or both c) and d)~~.

2. (original) The buffered solution according to claim 1, wherein said pH is in a range of about 6.8-7.8.

3. (original) The buffered solution according to claim 1, wherein said pH is about 7.4-7.5.

4. (original) The buffered solution according to claim 1, wherein when said inorganic salt is a monovalent species, said concentration of said salt is about 10-500 mM.

5. (original) The buffered solution according to claim 1, wherein when said inorganic salt is a divalent species, said concentration of said salt is about 1-50 mM.

6. (currently amended) The buffered solution according to claim 1, wherein said buffered solution further comprises ~~composition further comprising:~~ a labeled ligand and a target compound.

7. (currently amended) The buffered solution according to claim 1, wherein said [[pH]] buffer reagent is made from a solution comprising ~~having commonly used pH control~~

~~reagents selected from~~ Tris-HCl, HEPES-KOH, TES-NH_4OH, MOPS, acetate, citrate, citrate-phosphate, sodium-phosphate, maleate, or succinate buffers.

8. (currently amended) The buffered solution according to claim 1, wherein said inorganic salt ~~may be~~ is selected from the group consisting of NaCl, KCl, $CaCl_2$, $MgCl_2$, $MgSO_4$, [[or]] and $MnCl_2$.

9. (currently amended) The buffered solution according to claim 1, wherein said blocker reagent is a hydrophilic polymer, a biopolymer, or a water-soluble protein.

10. (currently amended) The buffered solution according to claim 9, wherein said ~~blockers~~ blocker reagent is ~~characterized as a~~ reagent that reduces background signal and does not interfere with [[the]] binding of a target molecule with a GPCR on the GPCR array ~~the probe receptors within a biological membrane microspot~~.

11. (original) The buffered solution according to claim 9, wherein said hydrophilic polymer is dextran, polyvinyl alchol, poly (ethylene glycol), poly(anetholsulfate), poly(vinyl sulfate), CM-Dextran, dextran sulfate, beta-cyclodextrin, poly(acrylic acid), poly(sodium 4-styrene sulfonate).

12. (original) The buffered solution according to claim 9, wherein said biopolymer is poly-glutamate acid, or DNA.

13. (currently amended) The buffered solution according to claim 9, wherein said water-soluble protein is bovine serum albumin (BSA), casein, ~~dry milk,~~ or wheat germ agglutinin.

14. (currently amended) The buffered solution according to claim 1, wherein said buffered solution is protease-free.

15. (currently amended) The buffered solution according to claim 1, wherein said buffered solution further comprises a protease inhibitor of about 0.001 mM to about 100 mM, and said protease inhibitor comprises an agent selected from the group consisting of EDTA, EGTA, phenyl methyl sulfonyl ~~sulforyl~~ fluoride (PMSF), bacitracin, 4-(2-aminoethyl)benzenesulfonyl fluoride (AEBSF), 1,10-phenanthroline, E-64, antipain,

aprotinin, benzamidine HCl, bestatin, chymostatin, ε-aminocaproic acid, [[N-ethylmaleimid]] N-ethylmaleimide, leupeptin, pepstatin A, phosphoramidon, trypsin inhibitor, and any combination of these.

16. (withdrawn) A buffered solution for functional assays according to a GTP-analogue-binding profile approach, the solution having a composition comprising: a) a buffer reagent with a pH in the range of about 6.5 to about 7.9; b) a divalent inorganic salt, optionally together with a monovalent inorganic salt, at a concentration from about 1 mM to about 500 mM; c) guanosine 5'-diphosphate (GDP) salt at a concentration of about 0.5 mM to about 50 mM (1-10 mM); and optionally a combination of: d) a blocker reagent at a concentration of about 0.01 wt.% to about 2 wt.% of the composition, e) protease-inhibitor at a concentration of about 0.001 mM to about 100 mM, or f) an anti-oxidant reagent at a concentration of 0.01 mM to about 100 mM.

17. (withdrawn) The solution according to claim 16, wherein said GTP-analogue includes fluorescein-GTPγS, Bodipy-fluorescein-GTPγS, Bodipy-TMR-GTPγS, Cy3-GTPγS, Cy5-GTPγS, Eu-GTP, ^{35}S-GTPγS.

18. (withdrawn) The solution according to claim 16, wherein said GDP salt is selected from a group consisting of: lithium-, sodium-, and Tris-GDP salts.

19. (withdrawn) The solution according to claim 16, wherein said anti-oxidant reagent includes sodium ascorbate, ascorbic acid, carotenoid lycopene, a-tocopherol, β-carotene, sodium azide.

20. (withdrawn) The solution according to claim 16, wherein said anti-oxidant reagent has a concentration in a range of about 0.001 wt.% to about 0.5 wt.%

21. (withdrawn) The solution according to claim 16, wherein said pH is in a range of about 6.8-7.8.

22. (withdrawn) The solution according to claim 18, wherein said pH is about 7.4-7.5.

23. (withdrawn) The solution according to claim 16, wherein said pH buffer is made from a solution having commonly used pH control reagents selected from Tris-HCl, HEPES-KOH, TES-NH_4OH, MOPS, acetate, citrate, citrate-phosphate, sodium-phosphate, maleate, or succinate buffers.

24. (withdrawn) The solution according to claim 16, wherein said inorganic salt may be selected from NaCl, KCl, $CaCl_2$, $MgCl_2$, $MgSO_4$, or $MnCl_2$.

25. (withdrawn) The solution according to claim 16, wherein said blocker reagent is a hydrophilic polymer, a biopolymer, or a water-soluble protein.

26. (withdrawn) The solution according to claim 22, wherein said blockers characterized as a reagent that reduces background signal and does not interfere with the binding of a target molecule with the probe receptors within a biological membrane microspot.

27. (withdrawn) The solution according to claim 22, wherein said hydrophilic polymer is dextran, polyvinyl alchol, poly (ethylene glycol), poly(anetholsulfate), poly(vinyl sulfate), CM-Dextran, dextran sulfate, beta-cyclodextrin, poly(acrylic acid), poly(sodium 4-styrene sulfonate).

28. (withdrawn) The solution according to claim 22, wherein said biopolymer is poly-glutamate acid, or DNA.

29. (withdrawn) The solution according to claim 22, wherein said water-soluble protein is bovine serum albumin (BSA), casein, dry milk, or wheat germ agglutinin.

30. (withdrawn) The solution according to claim 16, wherein said solution is protease-free.

31. (withdrawn) The solution according to claim 16, wherein said protease inhibitor may include EDTA, EGTA, phenyl methyl sulforyl fluoride (PMSF), bacitracin, 4-(2-aminoethyl)benzenesulfonyl fluoride (AEBSF), 1,10-phenanthroline, E-64, antipain, aprotinin, benzamidine HCl, bestatin, chymostatin, ε-aminocaproic acid, N-ethylmaleimid, leupeptin, pepstatin A, phosphoramidon, trypsin inhibitor, and any combination of these.

32. (withdrawn) A method of reducing background signal due to non-specific binding of a labeled-ligand or GTP-analogue to a substrate surface, the method comprising: a) providing a buffered solution containing a blocker reagent; b) applying said solution to an array of GPCRs; c) applying a second solution containing a labeled ligand or GTP-analogue, in either the absence or presence of a target compound; and d) monitoring or determining the binding of said labeled ligand to a receptor, or said GTP-analogue to a G -protein coupled with said receptor in said array.

33. (withdrawn) The method according to claim 30, wherein said method further comprises a washing and dry step before data acquisition.

34. (withdrawn) A method of reducing background signal due to non-specific binding of a labeled-ligand or GTP-analogue to a substrate surface, the method comprising: a) providing a solution containing a blocker reagent and a labeled ligand or GTP-analogue, in either the absence or presence of a target compound; b) applying said solution to a microarray of GPCRs; and c) monitoring or determining the binding of said labeled ligand to a receptor, or said GTP-analogue to a G-protein coupled with said receptor in said microarray.

35. (new) The buffered solution according to claim 1, wherein said blocker reagent is dry milk.

36. (new) The buffered solution according to claim 1, wherein said buffered solution further comprises a plurality of ligands capable of binding to said multiple GPCRs.

37. (new) The buffered solution according to claim 36, wherein said buffer reagent comprises a pH control reagent selected from the group consisting of Tris-HCl, HEPES-KOH, TES-NH_4OH, MOPS, acetate, citrate, citrate-phosphate, sodium-phosphate, maleate, and succinate, and wherein said inorganic salt is selected from the group consisting of NaCl, KCl, $CaCl_2$, $MgCl_2$, $MgSO_4$, and $MnCl_2$, and wherein said blocker reagent comprises a water-soluble protein.

AMENDMENTS TO THE DRAWINGS

Please replace the original sheets including Figures 1-5 with the attached replacement sheets which include three copies of the color drawings of Figures 1A, 1B, 2A, 2B, 3A, 3B, and 5, and a black and white copy of each of the above color drawings and Figures 1C, 2C, 2D, 3C, 3D, and 4.

In the replacement sheets, the color of each column in Figures 1C, 2C, 2D, 3C, and 3D has been changed.

Attachment: eighteen replacement sheets including three copies of the color drawings Figures 1A, 1B, 2A, 2B, 3A, 3B, and 5, and a black and white copy of each of the above color drawings and Figures 1C, 2C, 2D, 3C, 3D, and 4.